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(54) AUDIO/VIDEO DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an audio/video device which shows band language by using animation with respect to a TV program that multiplexes character broadcast.

SOLUTION: When a receiving means 2 receives television broadcast, a band language animation information extracting means 6 extracts character information from a program that is selected by a selecting means 3 and gets a parameter which is needed to synthesize the band language animation. A band language animation synthesizing means 7 synthesizes a band language animation operation from data including plotting information. An outputting means 4 shows images of a program that is selected by an inputting means 5 and also shows band language by animation. Because only information that is needed for the synthesization of band language animation is received, sending data quantity at a broadcast station does not have to be so large.
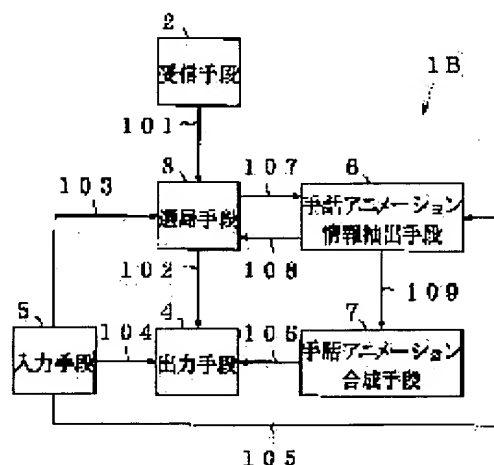
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[JP,10-322617,A]

CLAIMS

[Claim(s)]

[Claim 1] A receiving means to receive a television signal, and a channel-selection means to tune in the channel to which alphabetic information was added from the television signal which the aforementioned receiving means received, A sign language animation information extraction means to extract the aforementioned alphabetic information out of the signal tuned in by the aforementioned channel-selection means in order to compound a sign language animation, A sign language animation synthesis means to analyze the alphabetic information extracted from the aforementioned sign language animation extraction means, and to compound a sign language animation, The picture sound device characterized by providing an input means to input a channel-selection information and the designation information on a sign language animation, and an output means to output the program tuned in by the aforementioned channel-selection means, and the sign language animation compounded by the aforementioned sign language animation synthesis means.

[Claim 2] A receiving means to receive a television signal, and a channel-selection means to tune in the channel to which alphabetic information was added from the television signal which the aforementioned receiving means received, A sign language animation information extraction means to extract the aforementioned alphabetic information out of the means of communications which transmits and receives the information on an external system, and the signal tuned in by the aforementioned channel-selection means in order to compound a sign language animation, A sign language animation synthesis means to analyze the alphabetic information extracted from the aforementioned sign language animation extraction means, and to compound a sign language animation, An input means to input a channel-selection information, the designation information on a sign language animation, and a communication information, The picture sound device characterized by providing an output means to output the program tuned in by the aforementioned channel-selection means, the sign language animation compounded by the aforementioned sign language animation synthesis means, or the

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communication information transmitted and received by the aforementioned means of communications.

[Claim 3] While the aforementioned sign language animation information extraction means analyzes the modality of information inputted from the aforementioned input means, it codes the aforementioned communication information when the information is a communication information, and it outputs it to the aforementioned means of communications Either of the communication informations from the signal and the aforementioned means of communications from the aforementioned channel-selection means is changed into a parameter required for sign language animation synthesis. It is the picture sound device according to claim 2 characterized by being what the aforementioned parameter is outputted to the aforementioned sign language animation synthesis means, and the aforementioned means of communications makes the sign language animation compounded with the aforementioned sign language animation synthesis means a sign language information, and transmits to an external system.

[Claim 4] A receiving means to receive a television signal, and a channel-selection means to tune in the channel to which alphabetic information was added from the television signal which the aforementioned receiving means received, An input means to input a channel-selection information, alphabetic information, speech information, image information, and the designation information on a sign language animation, The information inputted from the aforementioned input means in the case of alphabetic information, speech information, or image information An input analysis means to perform analysis for changing these informations into a sign language information, A sign language animation information extraction means to generate an information required in order to compound a sign language animation from the analysis result of the program tuned in by the aforementioned channel-selection means, and the aforementioned input analysis means, A sign language animation synthesis means to analyze the sign language information generated from the aforementioned sign language animation extraction means, and to compound a sign language animation, The picture sound device characterized by providing an output means to output either the information tuned in by the aforementioned channel-selection means, and the sign language animation compounded by the aforementioned sign language animation synthesis means.

[Claim 5] A receiving means to receive a television signal, and a channel-selection means to tune in the channel to which alphabetic information was added from the television signal which the aforementioned receiving means received, The means of communications which transmits and receives the information on an external system, and an input means to input a channel-selection information, alphabetic information, speech information, image information, and the designation information on a sign language animation, The information inputted from the aforementioned input means in the case of alphabetic information, speech information, or image information An input analysis means to perform analysis for changing these informations into a sign language information, A sign language animation information extraction means to generate a sign language information required in order to compound a sign language animation from the analysis result of the signal tuned in by the aforementioned channel-selection means, and the aforementioned input analysis means, and either of informational which received by the aforementioned means of communications, A sign language animation synthesis means to

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analyze the information extracted from the aforementioned sign language animation extraction means, and to compound a sign language animation, The picture sound device characterized by providing an output means to output the program tuned in by the aforementioned channel-selection means, the sign language animation compounded by the aforementioned sign language animation synthesis means, or the communication information transmitted and received by the aforementioned means of communications.

[Claim 6] While the aforementioned sign language animation information extraction means analyzes the information inputted from the aforementioned input means, codes the result and outputs it to the aforementioned means of communications Either of the communication informations from the signal and the aforementioned means of communications from the aforementioned channel-selection means is changed into a parameter required for sign language animation synthesis. It is the picture sound device according to claim 5 characterized by being what the aforementioned parameter is outputted to the aforementioned sign language animation synthesis means, and the aforementioned means of communications makes the sign language animation compounded with the aforementioned sign language animation synthesis means a sign language information, and transmits to an external system.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001] [The technical field to which invention belongs] this invention relates to the picture sound device which enabled it to display the sign language animation relevant to the program in the television receiving set currently used as a public welfare device.

[0002] [Description of the Prior Art] The television receiving set which is one of the conventional picture sound devices does not have the special function for a hearing-impaired person. For this reason, at the broadcasting station, only within the existing time zone on the 1st, the sign language news program by the sign language translator was broadcast, and what embedded the picture by the sign language translator only within the specific program at a part of program was broadcast.

[0003] Moreover, in connection with the spread of computer internets in recent years, information interchange by the communication terminal between many users is also prosperous. Although the information interchange based on a Japanese character is satisfactory between auditory normal persons, the communication between the auditory normal person who does not know sign language, and the hearing-impaired person who does not know Japanese is not securable.

[0004] Drawing 3 is a block diagram of the conventional television receiving set 1A. This television receiving set 1A is constituted including the receiving means 2, the channel-selection means 3, the output means 4, and the input means 5. The receiving means 2 is a means to receive a television broadcasting signal. The channel-selection means 3 is a means to tune in a specific broadcast channel from the signal received from the receiving means 2. The input

means 5 is a means to input the information about a channel selection, and the information about an output. The output means 4 is a means to output the picture and sound in the program tuned in with the channel-selection means 3. When a sign language broadcast was included in a specific channel, the information had been acquired by the following operations.

[0005] If a channel number is first inputted from the input means 5, the input means 4 will transmit the control signal 203 for choosing a channel to the channel-selection means 3. The channel-selection means 3 chooses the television signal 201 outputted from the receiving means 1 in response to the signal. And the channel-selection means 3 sends the picture acoustic signal 202 of the tuned-in program to the output means 4. Moreover, the data 204 about a control of the quality of image inputted from the input means 4 are given to the output means 4. The output means 4 controls the picture acoustic signal 202 outputted from the channel-selection means 3 using these data 204. A program is chosen by this operation [a series of]. And an user looks for the program where the sign language information is embedded.

[0006] Moreover, there is an internet correspondence [for example,] type television receiving set as a conventional picture sound device with communication facility. This television receiving set is called TV with Internet functions, and the configuration and operation are explained using drawing 4 . In addition to the receiving means 2, the channel-selection means 3, the output means 4, and the input means 5, TV-with-Internet-functions 9A is constituted including means of communications 8.

[0007] The receiving means 2 is a means to receive a television broadcasting signal. The channel-selection means 3 is a means to tune in a specific broadcast channel from the signal received from the receiving means 2. The input means 5 is a means to input and set up the information about a channel selection, the information about a communication, or the information about a sign language animation. The output means 4 is a means to output the information tuned in by the channel-selection means 3, or the information transmitted and received by means of communications 8. Means of communications 8 is a means to transmit and receive the information on an external system.

[0008] Selection of a sign language channel and an operation of transmission and reception of an internet information are explained. If a channel number is inputted first, the input means 5 will output a control signal 403 to the channel-selection means 3. In response to the signal, the channel-selection means 3 tunes in the television signal 401 outputted from the receiving means 1, and gives the tuned-in picture acoustic signal 402 to the output means 4. Moreover, the information about a control of the quality of image inputted from the input means 5 is given to the output means 4 as data 404. In response to this, the output means 4 controls the picture acoustic signal 402 outputted from the channel-selection means 3.

[0009] Moreover, when transmitting and receiving an information using internet, an user outputs the command and the data 406 for communicating to means of communications 8 from the input means 5. In response to this, means of communications 8 transmits data to the partner point. Moreover, when data have been transmitted from the partner point, an user operates the input means 5 and gives the data 406 of data incorporation and a command to means of

communications 8. If it does so, means of communications 8 will output received data 405 to the output means 4. By such a series of operation, an information can be transmitted and received through internet. In addition, internet is an example connected to means of communications, and is not limited to this function here.

[0010] [Problem(s) to be Solved by the Invention] However, since the above picture sound devices do not have the special function for a hearing-impaired person, when a hearing-impaired person wants, they cannot take out the information on desired at will.

[0011] Moreover, at a part of broadcasting station, only within the existing time zone on the 1st, the sign language news program by the sign language translator is broadcast, or what embedded the picture by the sign language translator at a part of program is broadcast only within a specific program. thus, a case -- a hearing-impaired person -- one day -- an information is acquired only from the time and the content which were restricted very much Moreover, it is not few, when it cannot perform the unification by the Japanese standard language of a spoken language and the sign language by the sign language translator cannot understand at all, although a dialect is in sign language for every district. Therefore, if it is the existing technique, it cannot correspond by the district.

[0012] In order to solve such a problem, the sign language corresponding to all dialects is transmitted for every district, and finer correspondence can be performed if the function as which I have a hearing-impaired person choose the specific sign language technique by the picture sound device side is prepared. However, it does not realize in a broadcast system present in it being difficult to secure the sign language translator who can correspond to it, and transmitting more informations. There was a trouble where the information of a report of emergency, shelter, or a medical institution that a sex is demanded especially instancy did not fully travel to a hearing-impaired person. In such a case, a hearing-impaired person will be exposed to the risk of a life by the probability higher than an auditory normal person.

[0013] It is this invention's being made in view of such a conventional trouble, and incorporating the sign language synthesis function using the animation into a picture sound device, and the amount of data by the side of a broadcasting station is lessened, and it sets it as the 1st purpose to realize the picture sound device which enabled it to correspond to the dialect of sign language, or the increase in a new sign language word simply. Moreover, it sets it as the 2nd purpose to realize a picture sound device so that sufficient communication between an auditory normal person and a hearing-impaired person can be performed smoothly.

[0014] [Means for Solving the Problem] In order to solve the above technical probrems invention of this application according to claim 1 A receiving means to receive a television signal, and a channel-selection means to tune in the channel to which alphabetic information was added from the television signal which the aforementioned receiving means received, A sign language animation information extraction means to extract the aforementioned alphabetic information out of the signal tuned in by the aforementioned channel-selection means in order to compound a sign language animation, A sign language animation synthesis means to analyze the alphabetic information extracted from the aforementioned sign language animation

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extraction means, and to compound a sign language animation, It is characterized by providing an input means to input a channel-selection information and the designation information on a sign language animation, and an output means to output the program tuned in by the aforementioned channel-selection means, and the sign language animation compounded by the aforementioned sign language animation synthesis means.

[0015] Moreover, a receiving means by which invention of this application according to claim 2 receives a television signal, A channel-selection means to tune in the channel to which alphabetic information was added from the television signal which the aforementioned receiving means received, A sign language animation information extraction means to extract the aforementioned alphabetic information out of the means of communications which transmits and receives the information on an external system, and the signal tuned in by the aforementioned channel-selection means in order to compound a sign language animation, A sign language animation synthesis means to analyze the alphabetic information extracted from the aforementioned sign language animation extraction means, and to compound a sign language animation, An input means to input a channel-selection information, the designation information on a sign language animation, and a communication information, It is characterized by providing an output means to output the program tuned in by the aforementioned channel-selection means, the sign language animation compounded by the aforementioned sign language animation synthesis means, or the communication information transmitted and received by the aforementioned means of communications.

[0016] Invention of this application according to claim 3 is set to the picture sound device of a claim 2. moreover, the aforementioned sign language animation information extraction means While the modality of information inputted from the aforementioned input means is analyzed, the aforementioned communication information is coded when the information is a communication information, and outputting to the aforementioned means of communications Either of the communication informations from the signal and the aforementioned means of communications from the aforementioned channel-selection means is changed into a parameter required for sign language animation synthesis. It is characterized by outputting the aforementioned parameter to the aforementioned sign language animation synthesis means, and for the aforementioned means of communications making the sign language animation compounded with the aforementioned sign language animation synthesis means a sign language information, and transmitting to an external system.

[0017] Moreover, a receiving means by which invention of this application according to claim 4 receives a television signal, A channel-selection means to tune in the channel to which alphabetic information was added from the television signal which the aforementioned receiving means received, An input means to input a channel-selection information, alphabetic information, speech information, image information, and the designation information on a sign language animation, The information inputted from the aforementioned input means in the case of alphabetic information, speech information, or image information An input analysis means to perform analysis for changing these informations into a sign language information, A sign language animation information extraction means to generate an information required in order to compound a sign language animation from the analysis result of the program tuned in by the

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aforementioned channel-selection means, and the aforementioned input analysis means, A sign language animation synthesis means to analyze the sign language information generated from the aforementioned sign language animation extraction means, and to compound a sign language animation, It is characterized by providing an output means to output either the information tuned in by the aforementioned channel-selection means, and the sign language animation compounded by the aforementioned sign language animation synthesis means.

[0018] Moreover, a receiving means by which invention of this application according to claim 5 receives a television signal, A channel-selection means to tune in the channel to which alphabetic information was added from the television signal which the aforementioned receiving means received, The means of communications which transmits and receives the information on an external system, and an input means to input a channel-selection information, alphabetic information, speech information, image information, and the designation information on a sign language animation, The information inputted from the aforementioned input means in the case of alphabetic information, speech information, or image information An input analysis means to perform analysis for changing these informations into a sign language information, A sign language animation information extraction means to generate a sign language information required in order to compound a sign language animation from the analysis result of the signal tuned in by the aforementioned channel-selection means, and the aforementioned input analysis means, and either of informational which received by the aforementioned means of communications, A sign language animation synthesis means to analyze the information extracted from the aforementioned sign language animation extraction means, and to compound a sign language animation, It is characterized by providing an output means to output the program tuned in by the aforementioned channel-selection means, the sign language animation compounded by the aforementioned sign language animation synthesis means, or the communication information transmitted and received by the aforementioned means of communications.

[0019] Invention of this application according to claim 6 is set to the picture sound device of a claim 5. moreover, the aforementioned sign language animation information extraction means While the information inputted from the aforementioned input means is analyzed, and the result is coded and outputting to the aforementioned means of communications Either of the communication informations from the signal and the aforementioned means of communications from the aforementioned channel-selection means is changed into a parameter required for sign language animation synthesis. It is characterized by outputting the aforementioned parameter to the aforementioned sign language animation synthesis means, and for the aforementioned means of communications making the sign language animation compounded with the aforementioned sign language animation synthesis means a sign language information, and transmitting to an external system.

[0020] According to the configuration according to claim 1, a sign language animation information extraction means processes the alphabetic information from a channel-selection means, and passes the data changed into the parameter required for sign language animation synthesis to a sign language animation synthesis means. And a sign language animation synthesis means compounds a sign language animation using this data.

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[0021] According to the configuration of a claim 2 and three publications, a sign language animation information extraction means interprets and codes the information inputted from the input means, and transmits it to means of communications. Moreover, the data which processed the information from a channel-selection means or the information from means of communications, and were changed into the parameter required for sign language animation synthesis are passed to a sign language animation synthesis means. A sign language animation synthesis means processes the information from a sign language animation information extraction means, and compounds a sign language animation, and means of communications transmits the sign language information transmitted from the sign language animation synthesis means to an external system.

[0022] According to the configuration according to claim 4, a sign language animation information extraction means processes the information from a channel-selection means or an input analysis means, and passes the data changed into the parameter required for sign language animation synthesis to a sign language animation synthesis means. A sign language animation synthesis means processes the information and the information from a sign language animation information extraction means that it was inputted from the input means, and compounds a sign language animation.

[0023] According to the configuration according to claim 5, a sign language animation information extraction means interprets and codes the sign language information inputted from the input means, and transmits it to means of communications. Moreover, the information from a channel-selection means, the information from means of communications, or the information from an input analysis means is processed, and the data changed into the parameter required for sign language animation synthesis are passed to a sign language animation synthesis means. A sign language animation synthesis means processes the information from a sign language animation information extraction means, and compounds a sign language animation, and means of communications transmits the sign language information transmitted from the aforementioned sign language animation synthesis means to an external system.

[0024] [Embodiments of the Invention]

(Gestalt 1 of operation) It explains, referring to drawing 1 about the picture sound device in the gestalt 1 of operation of this invention. Drawing 1 is a block diagram of picture sound device 1B of the gestalt of this operation which has a sign language animation synthesis function, and the same fraction as the conventional example attaches and explains the same sign. Picture sound device 1B is constituted including the receiving means 2, the channel-selection means 3, the output means 4, the input means 5, the sign language animation information extraction means 6, and the sign language animation synthesis means 7. [0025] The receiving means 2 is a means to receive a television signal, for example, contains a ground wave antenna and a parabolic antenna. The channel-selection means 3 tunes in the program to which the alphabetic information which received from the receiving means 2 was added, and VHF, UHF ********, and a broadcasting satellite tuner hit this.

[0026] The output means 4 outputs the picture and sound which were tuned in by the channel-selection means 3, and a television monitor hits this. The input means 5 inputs a channel-selection information, or the output of a sign language animation is directed, and remote control, a cross-joint pad, a mouse, etc. hit this.

[0027] The sign language animation information extraction means 6 is a means to extract a parameter required for sign language animation synthesis, for example, teletext data, out of the data 107 of the channel-selection means 3, to generate drawing ******, and to give the data 109 to the sign language animation synthesis means 7, when the command 105 of animation synthesis is inputted from the input means 5. The sign language animation synthesis means 7 is a means to interpret the content of output data 109, to compound an operation of a sign language animation, and to give the drawing data 106 to the output means 4.

[0028] An operation of synthesis of the sign language animation in the picture sound device of such a configuration is explained. First, the command 103 of a channel selection is outputted to the channel-selection means 3 from the input means 5. In response to this, from the input signal 101 of the receiving means 2, the channel-selection means 3 tunes in the signal of a channel with which alphabetic information was added, and outputs the picture acoustic signal 102 to the output means 4. The output means 4 outputs the picture and sound which have been transmitted. This alphabetic information is inserted in the horizontal scanning term of the beginning of one frame or one field like a teletext, or is inserted in the fraction of subvoice.

[0029] Here, the input means 5 will give the command 105 of sign language animation synthesis to the sign language animation information extraction means 6, if the command in the sign language animation synthesis mode is inputted. In order that the sign language animation information extraction means 6 may obtain the data concerning sign language animation synthesis in response to this, a command 108 is sent to the channel-selection means 3.

[0030] The channel-selection means 3 which received this command 108 outputs the teletext data 107 extracted from the television signal by the sign language animation information extraction means 6. The sign language animation information extraction means 6 extracts a parameter required for sign language animation synthesis out of data 107, and sends the drawing data 109 to the sign language animation synthesis means 7. In response to this, the sign language animation synthesis means 7 interprets data 109, and gives the data 106 changed into the sign language animation operation to the output means 4.

[0031] For example, the sign language animation information extraction means 6 may store and output the parameter information extracted from data 107 to an alphabetic information storage area. With the gestalt of this operation, it shall output to the sign language animation synthesis means 7, once storing in memory the data expressed by simultaneous sign language in the teletext code, and using this data as output data 109.

[0032] For example, Japanese is shown as data 1 and simultaneous sign language is shown as data 2.

(Japanese representation) the; data 2 [0033] which "is me, identifier, Yamamoto, and " [; data which "is / of my identifier / Yamamoto " 1 (simultaneous sign language)] Moreover, the parameter extracted by the sign language animation information extraction means 6 has the following formats, for example.

(Parameter information on a sign language animation)

5 (the number of = words) ; data 3watashi (me) ; data 4namae (identifier) ; data 5yama (crest) ; data 6hon (book) ; data 7desu (it is) ; data 8 [0034] The sign language animation information extraction means 6 passes the drawing data 109 which analyze every one parameter information on the extracted sign language animation as follows, and were analyzed and obtained to the sign language animation synthesis means 7.

[0035] Since the five numbers of words continue from data 3 as shown above first, a series of following operations are repeated 5 times. That is, data 4 are analyzed first and the drawing data of sign language word correspondence corresponding to a sign language word "watashi (I)" are searched out of the sign language word correspondence drawing data table in which it is stored by the sign language animation information extraction means 6. The content of the sign language word correspondence data table corresponding to "watashi (I)" presupposes that it is the data 91 and the data 92 which are stored in data 9.

[0036] The data 91 and the data 92 which are a drawing information required in order to compound these sign language animations are outputted to the sign language animation synthesis means 7. In response to this, the sign language animation synthesis means 7 changes data 91 and the data 92 into a series of finger operation, and compounds a sign language animation. The animation compounded by the sign language animation synthesis means 7 is given to the output means 4 as drawing data 106. The output means 4 draws the sign language animation of "me."

[0037] In the sign language word correspondence drawing data table of the sign language animation information extraction means 6, the data 9 - the data 19 have the structure which is shown below.

[0038] (Sign language word correspondence drawing data table) Individual word identifier = "watasino(me)"; data 9 "Right-hand:hand type 11, the orientation 11 of a hand, the position 11 of a hand, the pass 11, position 12 of a hand " ; Data 91 "Left-hand:hand type 12, the orientation 12 of a hand, the position 13 of a hand, the pass 11, position 14 of a hand " ; Data 92 [0039] Individual word identifier = "anata(you)"; data 10 "Right-hand:hand type 21, the orientation 21 of a hand, the position 21 of a hand, the pass 21, position 22 of a hand" "Left-hand:hand type 22, the orientation 22 of a hand, the position 23 of a hand, the pass 22, the position 24 of a hand"

[0040] Individual word identifier = "namae(identifier)"; data 11 "Right-hand:hand type 31, the orientation 31 of a hand, the position 31 of a hand, the pass 31, position 32 of a hand" "Left-

hand:hand type 32, the orientation 32 of a hand, the position 33 of a hand, the pass 31, the position 34 of a hand"

[0041] Individual word identifier = "chichi(father)"; data 12 "Right-hand:hand type 41, the orientation 41 of a hand, the position 41 of a hand, the pass 41, position 42 of a hand" "Left-hand:hand type 42, the orientation 42 of a hand, the position 43 of a hand, the pass 42, the position 44 of a hand"

[0042] Individual word identifier = "haha(mother)"; data 13 "Right-hand:hand type 51, the orientation 51 of a hand, the position 51 of a hand, the pass 51, position 52 of a hand" "Left-hand:hand type 52, the orientation 52 of a hand, the position 53 of a hand, the pass 51, the position 54 of a hand"

[0043] Individual word identifier = "yama(crest)"; data 14 "Right-hand:hand type 61, the orientation 61 of a hand, the position 61 of a hand, the pass 61, position 62 of a hand" "Left-hand:hand type 62, the orientation 62 of a hand, the position 63 of a hand, the pass 61, the position 64 of a hand"

[0044] Individual word identifier = "kawa(river)"; data 15 "Right-hand:hand type 71, the orientation 71 of a hand, the position 71 of a hand, the pass 71, position 72 of a hand" "Left-hand:hand type 72, the orientation 72 of a hand, the position 73 of a hand, the pass 72, the position 74 of a hand"

[0045] Individual word identifier = "benkyou(study)"; data 16 "Right-hand:hand type 81, the orientation 81 of a hand, the position 81 of a hand, the pass 81, position 82 of a hand" "Left-hand:hand type 82, the orientation 82 of a hand, the position 83 of a hand, the pass 82, the position 84 of a hand"

[0046] Individual word identifier = "hon(book)"; data 17 "Right-hand:hand type 91, the orientation 91 of a hand, the position 91 of a hand, the pass 91, position 92 of a hand" "Left-hand:hand type 92, the orientation 92 of a hand, the position 93 of a hand, the pass 92, the position 94 of a hand"

[0047] individual word identifier = "desu(it is)"; data 18 "Right-hand:hand type 101, the orientation 101 of a hand, the position 101 of a hand, the pass 101, and position 102 of a hand" "Left-hand:hand type 102, the orientation 102 of a hand, the position 103 of a hand, the pass 102, and the position 104 of a hand"

[0048] Individual word identifier = "imasu(it is)"; data 19 "Right-hand:hand type 111, the orientation 111 of a hand, the position 111 of a hand, the pass 111, and position 112 of a hand" "Left-hand:hand type 112, the orientation 112 of a hand, the position 113 of a hand, the pass 112, and the position 114 of a hand"

[0049] By such a series of operation, real-time animation synthesis of the sign language by teletext data is attained, and sign language can be displayed by very few transmit data.

Moreover, if the data 107 of an additional command or the content of an update are inputted into the sign language animation information extraction means 6 from the channel-selection means 3, the sign language animation information extraction means 6 will update the content of a sign language word correspondence drawing table.

[0050] As mentioned above, the word train which carries out a sign language animation by the teletext is transmitted, and a sign language animation is compounded on real time by the picture sound device. If it carries out like this, there are few amounts of transmissions of the data of the broadcasting station about sign language, and it ends, and can correspond to a new addition of a sign language language, and the sign language dialect of every place easily.

[0051] (Gestalt 2 of operation) It explains, referring to <u>drawing 2</u> about the picture sound device in the gestalt 2 of operation of this invention. <u>Drawing 2</u> is a block diagram of picture sound device 9B which has the communication facility of a sign language animation synthesis function and an external system, and the same fraction as <u>drawing 1</u> attaches the same sign, and omits an explanation. Picture sound device 9B is constituted including the receiving means 2, the channel-selection means 3, the output means 4, the input means 11, the sign language animation information extraction means 6, the sign language animation synthesis means 7, the means of communications 8, and the input analysis means 10.

[0052] Means of communications 8 is a means to communicate with an external system, and the telephone line, ISDN network, etc. are connected. The input analysis means 10 is a means to change into the data which analyze the data 310 inputted from the input means 11, and are easy to extract a sign language animation information. The input means 11 of the gestalt of this operation shall have the function of the keyboard which inputs alphabetic information, the microphone which inputs speech information, and the image pck-up equipment which inputs a picture information not to mention the function of usual remote control. As an input analysis means 10, there are sign language gesture recognition equipment, a voice recognition unit, sentential-calculus equipment that analyzes Japanese from a text data.

[0053] When the input analysis means 10 is sign language gesture recognition equipment and the picture image of sign language gesture is inputted from the input means 11, the image information is changed into the message which an auditory normal person can understand. Input voice is changed into a sign language word when the input analysis means 10 is a voice recognition unit. A text data is changed into a sign language word when the input analysis means 10 is sentential-calculus equipment.

[0054] An operation of picture sound device 9B of such a configuration is explained. First, the command 303 of a channel selection is outputted to the channel-selection means 3 from the input means 11. In response to this, the channel-selection means 3 outputs the picture acoustic signal 302 which tuned in the signal of a channel with which alphabetic information was added from the input signal 301 of the receiving means 2, and was tuned in for the output means 4. The output means 4 outputs a picture and sound.

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[0055] Next, if the command in the sign language animation synthesis mode is inputted, the input means 11 will give the command 305 of sign language animation synthesis to the sign language animation information extraction means 6. In response to this, the sign language animation information extraction means 6 sends the command 308 for inputting the data concerning sign language animation synthesis to the channel-selection means 3.

[0056] If this command 308 is received, the channel-selection means 3 will extract alphabetic information from a television signal, and will output the data 307 to the sign language animation information extraction means 6. The sign language animation information extraction means 6 extracts a parameter required for sign language animation synthesis out of data 307, and gives the data 309, such as a drawing information, to the sign language animation synthesis means 7. The sign language animation synthesis means 7 interprets the content of this data 309, and gives the drawing data 306 to the output means 4.

[0057] The sign language animation information extraction means 6 may once store in an alphabetic information storage area the parameter information extracted out of data 307, and may output it as data. Here, the data expressed by simultaneous sign language shall be stored and outputted into a teletext code. Moreover, if at least one kind of a text data, a sound signal, or sign language gesture is chosen by the input means 11, the input means 11 will use a selection result as data 310, and will output it to the input analysis means 10. The input analysis means 10 analyzes this data 310, and it outputs the same data 314 to means of communications 8 while outputting to the sign language animation information extraction means 6, using the code corresponding to the sign language word as data 311. The data 311 and 314 outputted here have a format like the data 32 shown below. ; data 32 which "is me, identifier, Yamamoto, and " [0058] Moreover, the parameter extracted by the sign language animation information extraction means 6 has the following formats, for example. (Sign language animation parameter information) 5 (the number of = words) ; data 33 "watashi (me)" ; Data 34"namae[(identifier)]"; data 35 "yama (crest)" ; Data 36 "hon (book)" ; Data 37"desu[(it is)]"; data 38 [0059] The sign language animation information extraction means 6 uses the drawing information which analyzes one at a time, and was analyzed and acquired like the case of the gestalt 1 of operation of the parameter information on the extracted sign language animation as data 309, and gives it to the sign language animation synthesis means 7. The sign language animation synthesis means 7 compounds a sign language animation using this data 309. The animation operation compounded by the sign language animation synthesis means 7 is outputted to the output means 4 as drawing data 306. And the output means 4 draws the sign language animation which synchronized with a picture and sound.

[0060] On the other hand, the data 312 given to means of communications 8 are transmitted to an external system. Moreover, means of communications 8 gives the code data 313 corresponding to the sign language word which received from the external system to the sign language animation information extraction means 6. The sign language animation information extraction means 6 changes this data 313 into a parameter required for a sign language animation, and outputs it to the sign language animation synthesis means 7 as data 309. The sign language animation synthesis means 7 compounds a sign language animation using this data 309, and outputs it to the output means 4 as data 306.

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[0061] By such a series of operation, animation synthesis of the real time of the sign language by teletext data or communication is enabled. Moreover, few processing of the amount of data is attained. Moreover, a both-directions communication of an auditory normal person and a hearing-impaired person is attained by establishing the input analysis means 10. Furthermore, by forming means of communications 8, the both-directions communication terminal between remote places is realizable. If it carries out like this, it will become a terminal very convenient for the hearing-impaired person who cannot do conversation by the telephone.

[0062] [Effect of the Invention] As mentioned above, according to this invention, since a picture sound device receives only an information required for synthesis of a sign language animation rather than receives the video signal of a sign language animation and compounds a sign language animation by the receiving side, there is little amount of data of a sign language information which should transmit by the broadcasting station side, and it ends, and it will become more realistic [the implementability]. Moreover, it is effective in the ability to correspond to the dialect of sign language, or the increase in a new sign language word easily, and correspond also to the information for which instancy nature, such as news, is needed quickly.

[0063] Moreover, there is an effect which raises the communication with the hearing-impaired person who cannot understand Japanese which is the auditory normal person and spoken language which do not know sign language.

Field

[The technical field to which invention belongs] this invention relates to the picture sound device which enabled it to display the sign language animation relevant to the program in the television receiving set currently used as a public welfare device.

Technique

[Description of the Prior Art] The television receiving set which is one of the conventional picture sound devices does not have the special function for a hearing-impaired person. For this reason, at the broadcasting station, only within the existing time zone on the 1st, the sign language news program by the sign language translator was broadcast, and what embedded the picture by the sign language translator only within the specific program at a part of program was broadcast.

[0003] Moreover, in connection with the spread of computer internets in recent years, information interchange by the communication terminal between many users is also prosperous. Although the information interchange based on a Japanese character is satisfactory between auditory normal persons, the communication between the auditory normal person who does not know sign language, and the hearing-impaired person who does not know Japanese is not securable.

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[0004] Drawing 3 is a block diagram of the conventional television receiving set 1A. This television receiving set 1A is constituted including the receiving means 2, the channel-selection means 3, the output means 4, and the input means 5. The receiving means 2 is a means to receive a television broadcasting signal. The channel-selection means 3 is a means to tune in a specific broadcast channel from the signal received from the receiving means 2. The input means 5 is a means to input the information about a channel selection, and the information about an output. The output means 4 is a means to output the picture and sound in the program tuned in with the channel-selection means 3. When a sign language broadcast was included in a specific channel, the information had been acquired by the following operations.

[0005] If a channel number is first inputted from the input means 5, the input means 4 will transmit the control signal 203 for choosing a channel to the channel-selection means 3. The channel-selection means 3 chooses the television signal 201 outputted from the receiving means 1 in response to the signal. And the channel-selection means 3 sends the picture acoustic signal 202 of the tuned-in program to the output means 4. Moreover, the data 204 about a control of the quality of image inputted from the input means 4 are given to the output means 4. The output means 4 controls the picture acoustic signal 202 outputted from the channel-selection means 3 using these data 204. A program is chosen by this operation [a series of]. And an user looks for the program where the sign language information is embedded.

[0006] Moreover, there is an internet correspondence [for example,] type television receiving set as a conventional picture sound device with communication facility. This television receiving set is called TV with Internet functions, and the configuration and operation are explained using drawing 4 . In addition to the receiving means 2, the channel-selection means 3, the output means 4, and the input means 5, TV-with-Internet-functions 9A is constituted including means of communications 8.

[0007] The receiving means 2 is a means to receive a television broadcasting signal. The channel-selection means 3 is a means to tune in a specific broadcast channel from the signal received from the receiving means 2. The input means 5 is a means to input and set up the information about a channel selection, the information about a communication, or the information about a sign language animation. The output means 4 is a means to output the information tuned in by the channel-selection means 3, or the information transmitted and received by means of communications 8. Means of communications 8 is a means to transmit and receive the information on an external system.

[0008] Selection of a sign language channel and an operation of transmission and reception of an internet information are explained. If a channel number is inputted first, the input means 5 will output a control signal 403 to the channel-selection means 3. In response to the signal, the channel-selection means 3 tunes in the television signal 401 outputted from the receiving means 1, and gives the tuned-in picture acoustic signal 402 to the output means 4. Moreover, the information about a control of the quality of image inputted from the input means 5 is given to the output means 4 as data 404. In response to this, the output means 4 controls the picture acoustic signal 402 outputted from the channel-selection means 3.

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[0009] Moreover, when transmitting and receiving an information using internet, an user outputs the command and the data 406 for communicating to means of communications 8 from the input means 5. In response to this, means of communications 8 transmits data to the partner point. Moreover, when data have been transmitted from the partner point, an user operates the input means 5 and gives the data 406 of data incorporation and a command to means of communications 8. If it does so, means of communications 8 will output received data 405 to the output means 4. By such a series of operation, an information can be transmitted and received through internet. In addition, internet is an example connected to means of communications, and is not limited to this function here.

[Translation done.]